UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/772,093	01/26/2001	Feng Chen	4-10	7966

			EXAMINER
22186	7590	05/03/2005	CHANG, EDITH M

MENDELSOHN AND ASSOCIATES PC
1515 MARKET STREET
SUITE 715
PHILADELPHIA, PA 19102

ART UNIT	PAPER NUMBER
2637	

DATE MAILED: 05/03/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

	Application No.	Applicant(s)
	09/772,093	CHEN ET AL.
Office Action Summary	Examiner	Art Unit	
	Edith M Chang	2637	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *18 February 2005*.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-46* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-46* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

DETAILED ACTION

1.   A request for continued examination under 37 CFR 1.114, including the fee set forth in

37 CFR 1.17(e), was filed in this application after final rejection. Since this application is

eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e)

has been timely paid, the finality of the previous Office action has been withdrawn pursuant to

37 CFR 1.114. Applicant's submission filed on February 18, 2005 has been entered.

2.   Applicant's arguments, see pages 6-11, filed on February 18, 2005, with respect to the

rejection(s)of claim(s) 1-46 under Zhou have been fully considered and are persuasive.

Therefore, the rejection has been withdrawn. However, upon further consideration, a new

ground(s) of rejection is made in view of Shou.

Claim Rejections - 35 USC § 102

3.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the

basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4.   Claims 1-11, 16-20, 28, 44 and 46 are rejected under 35 U.S.C. 102(b) as being

anticipated by Shou et al. (US 6,169,771 B1).

Regarding **claims 1, 16, 38 & 46**, in FIG.1 Shou et al. teaches a matched filter in a

receiver wherein an A/D converter (2) converts the received analog input (1) to M bits digital

signal X, the M bits are clocked into M (M > 2) N (N >2) stages shift-register (3, column 8 lines

62-64); XORs multiply the M-bit digital data with the corresponding Spread Code (d_1 to d_N)

generated by a spread code generator (column 8 line 64-column 9 line 3); and an adder (5) sums

the XORs outputs X'_1 to X'_N to an Output (6) that the correlation output is shown in equation (1)

column 2 lines 6-17 wherein a single spread code cycle has length of N.

In FIG.2, Shou et al. teaches more than one sums generated by adder 7_i to 7_M in one cycle

of spread code (in chip rate), and the clk samples the analog input (FIG.1, column 9 lines 4-6)

and sifts output of A/D to shift register 3 (column 9 lines 17-23), hence no new data is clocked in

while the sums provided by adder 7_i to 7_M during the cycle of spread code, since the new data

only shifted into shift register 3 at shift/sample clock clk.

Regarding **claims 2-3 & 17-18**, in FIG.1, Shou et al. teaches multiple stage buffers in

A/D converter receiving input from terminal 1 and storing the converted M bits X_1 to X_M.

Regarding **claims 4-5 & 19-20**, in FIG.2, Shou et al. teaches the one bit width d_i (i=1 to

N) spread code (tap weight) which is no greater than a bit width of stages of the shift register 3.

Regarding **claims 6-11**, it is well known in the art that the matched filter is implemented

in software and various hardwaress: an IC/ASIC, or a DSP/microcontroller/microprocessor.

Regarding **claim 44**, Shou et al. teaches the M multiple-stage shift registers having MxN

stages which is not a fix number, the number of M is by design choice (column 9 lines 12-16).

Hence the M multiple-stage shift registers do not have the same number of stages.

Claim Rejections - 35 USC § 103

5.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6.   Claims 12-15, 27 and 31-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shou et al. (US 6,169,771 B1) in view of Black et al. (6661833 B1).

Regarding **claims 12-15 & 27** Shou et al. teaches the Spread Code (PN code) generated by a spread code generator (column 8 line 64-column 9 line 3 '771) but not show the Spread Code generator. However, Black et al. teaches the PN code generator 318 in FIG.4 and FIG.6A & 6B, wherein the register, the processor, the ROM and RAM for PN sequence (column 11 lines 10-20). At the time of the invention, it would have been obvious to a person of ordinary skill in the art to have the PN generator taught by Black et al. in Shou et al.'s filter to provide the Spread Code to improve the acquisition of a CDMA system in a multiple system environment with different set of PN sequences (column 2 lines 24-40).

Regarding **claims 31 & 32**, it is well known in the art that the matched filter used to receive wireless signal both in the handset or the base station. Schilling teaches the receiver is the base station (Abstract), further Black et al. teaches the receiver is the handset/mobile station (Abstract, column 2 lines 30-35). The Shou et al.'s matched filter with Black et al.'s PN generator is in a handset or base station to receipt the wireless signal.

7.   Claims 33-37, 39-43 and 45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shou et al. (US 6,169,771 B1) in view of Zhou et al. (US 6,625,205).

Regarding **claims 33, 35-36 & 39-41**, in FIG.1, Shou et al. teaches a matched filter method that the M bits clocking/shifting into M (M > 2) N (N >2) stages shift-register according

the clk clock (3, column 8 lines 62-64); XORs multiplying the M-bit digital data with the Spread

Code generated by a spread code generator (column 8 line 64-column 9 line 3); and an adder (5)

summing the XOR outputs X'_1 to X'_N to an Output (6) that the correlation output is shown in

equation (1) column 2 lines 6-17 wherein a single spread code cycle has length of N. The

multiplying with proper Spread Code, summing, and providing the proper Spread Code for

multiplying in the single spread code cycle are repeated before the next input clocking into the

shift register 3, then start filtering the next input in the next clk.

Shou et al. teaches the Spread Code (PN code) generated by a spread code generator

(column 8 line 64-column 9 line 3 '771) but not show the Spread Code generator. However,

Zhou teaches the SREG being able reloaded with Din after the spread code cycle to provide the

Spread Code in Fig.3 and column 3 line 65-column 4 line 7). At the time of the invention, it

would have been obvious to a person of ordinary skill in the art to have the SREG taught by

Zhou in Shou et al.'s matched filter to provide the spread code in the spread code cycle for the

purpose of reducing the matched filter size to save the power (column 1 lines 44-46).

Regarding **claims 34 & 37**, in FIG.1, Shou et al. teaches storing/shifting the converted M

bits X_1 to X_M from the received input from 1 in A/D converter.

Regarding **claim 42**, in FIG.1, Shou et al. teaches each shift register (1, 2,...N of 3) of the

M multiple-stage shift registers receive a corresponding portion of the input signal 1.

Regarding **claim 43**, in FIG.2, Shou et al. teaches the matched filter generating N

different sums by adder 7_i to 7_M based on different d_1 to d_N.

Regarding **claim 45**, in FIG.2, Shou et al. teaches that the bit-width of d_i is one, the bit-width of the datum is M (FIG.2 where the output of XOR is M bits), and therefore, the bit-width of tap weight is smaller than the bit-width of each datum.

Conclusion

8.   The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The reference of Shilling (US 6,366,605 B1) described the matched filter implemented in software and different features of hardware.
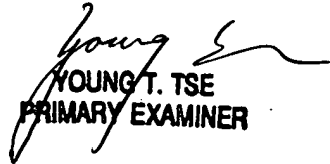
9.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to Edith M Chang whose telephone number is 571-272-3041. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jayanti Patel can be reached on 571-272-2988. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Edith Chang
April 26, 2005

YOUNG T. TSE
PRIMARY EXAMINER